AGENCY USE ONLY				
PERMIT NO.: MTG0102781	Date Rec'd.: 1/30/17	Amount Rec'd.: 0	Check No.:	Rec'd By:

Montana Department of
ENVIRONMENTAL QUALITY
WATER PROTECTION BUREAU

FORM **NOI**

Notice of Intent (NOI) for Montana Pollution Discharge Elimination System Application for New and Existing Concentrated Animal Feeding Operations

The Application form is to be completed by the owner or operator of a Concentrated Animal Feeding Operation (CAFO) or Aquatic Animal Production Facility. Please read the attached instructions before completing this form. You must print or type legibly; forms that are not legible or are not complete will be returned. You must maintain a copy of the completed application form for your records.

Section A - Application Status *(Check one):*

- [x] New — No prior application submitted for this site.
- [x] Resubmitted — Permit Number: MTG _____
- [ ] Renewal — Permit Number: MTG _____
- [ ] Modification — Permit Number: MTG _____

ENTERED
FEB 08 2017

COPY

Section B - Facility or Site Information *(See instruction sheet.):*

Site Name C.A. Ranch feedlot

Site Location 11000 Buffalo Jump Rd.

Nearest City or Town Three Forks, MT County Gallatin

Latitude 45°44'32.1"N Longitude 111°27'49.3"W

Date Facility began operation? 1996 1981

Is this facility or site located on Indian Lands? [ ] Yes [x] No

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Section C - Applicant (Owner/Operator) Information:

Owner or Operator Name C.A. Ranch Inc.

Mailing Address P.O. Box 10997

City, State, and Zip Code Bozeman, MT, 59719

Phone Number (406)-388-2294

Is the person listed above the owner? [ ] Yes [ ] No

Status of Applicant *(Check one)* [ ] Federal [ ] State [x] Private [ ] Public [ ] Other (specify) _____

Section D - Existing or Pending Permits, Certifications, or Approvals: ☐ None

☐ MPDES _____ ☐ RCRA _____

☐ PSD (Air Emissions) _____ ☐ Other _____

☐ 404 Permit (dredge & fill) _____ ☐ Other _____

Section E – Standard Industrial Classification (SIC) Codes:

Provide at least one SIC code which best reflects the activity of project described in Section H.			
Code	**A. Primary**	**Code**	**B. Second**
1	211	2	
Code	**C. Third**	**Code**	**D. Fourth**
3		3	

Section F - Facility or Site Contact Person/Position:

Name and Title, or Position Title: Chuck Bryson, manager

Mailing Address: 10900 Buffalo Jump Rd.

City, State, and Zip Code: Three Forks, MT, 58752

Phone Number: (406)-285-4609

Section G – Receiving Surface Waters(s):

Outfall/Discharge Locations: For each outfall, List latitude and longitude to the nearest second and the name of the receiving waters			
Outfall Number	**Latitude**	**Longitude**	**Receiving Surface Waters**
001	45°44'36.9"N	111°28'22.0"W	overland flow - hay field
002	45°44'44.9"N	111°28'26.9"W	Sloan Ditch - downhill from hay field
003	45°46'50.3"N	111°30'59.3"W	Madison River
004			
005			

Map: Attach a topographic map extending one mile beyond the property boundaries or the site activity identified in Section B depicting the facility or activity boundaries, major drainage patterns, and the receiving surface waters, stated above. Also identify the specific location of the production area, and land application area(s).

Is the receiving water on the 303(d) list for nutrients (nitrogen and/or phosphorus) ☐ Yes ☑ No

This is a zero discharge system. The lot, with its organic pack rarely produces run-off. If run-off occurs it is captured in a settling basin. In the event the settling basin over-topped, run-off would flow over a pasture before reaching an irrigation ditch (Sloan Ditch) with no tail-water. The terminal end of ditch discharges over a hay field. Further descriptions included in the NMP.

Section H – Concentration Animal Feeding Operation Characteristics

Waste Production, Storage and Disposal

Animal type	Number in Open Confinement	Number Housed Under Roof
☐ Mature Dairy Cows		
☐ Dairy Heifers		
☐ Veal Calves		
☑ Cattle (not dairy or veal)	1600	
☐ Swine (55 lbs or over)		
☐ Swine (55 lbs or under)		
☐ Horses		
☐ Sheep or Lambs		
☐ Turkeys		
☐ Chickens (broilers)		
☐ Chickens (layers)		
☐ Ducks		
☐ Other (Specify:_____)		
☐ Other (Specify:_____)		
☐ Other (Specify:_____)		

Manure, Litter and/or Wastewater Production and Use.

How much manure, litter, and process wastewater is generated annually by the facility?

Solid (tons): 1000 per year Liquid/Slurry (gallons): NONE

If land applied, how many acres of land under control of the permit applicant are available to apply the manure, litter, or process wastewater generated from the facility? (Note: Do not include setback distances in available acreage

1000 - 1075 Acres

How much manure, litter, and process wastewater is transferred to other persons per year? (estimated) Solid (tons): NONE Liquid/Slurry (gallons): NONE

Were the containment structures built after February 2006?

- ☑ Do the waste containment structures have 10 feet of separation between the pond bottom and any bedrock formations?
- ☑ Do the waste containment structures have 4 feet of separation from the pond bottom and any ground water?
- ☑ Were any of the waste containment structures built within 500 feet of any existing well?

Type of Containment/Storage	Total Capacity	Units (gallons or tons)	Days of Storage
☐ Anaerobic Lagoon			
☐ Storage Pond #1			
☐ Storage Pond #2			
☐ Storage Pond #3			
☐ Storage Pond #4			
☐ Storage Pond #5			
☐ Above Ground Storage Tank			
☐ Below Ground Storage Tank #1			
☐ Below Ground Storage Tank #2			
☐ Underfloor Pits			
☐ Roofed Storage Shed			
☐ Concrete Pad			
☐ Impervious Soil Pad			
☑ Other (Specify: storm protected lot)	2000 plus	tons solid manure	365
☑ Other (Specify: Settling/Evaporating)	237,000	gallons	30+

Physical Data for CAFO

Nutrient Management Plan

All Concentrated Animal Feeding Operations seeking permit coverage after July 31, 2007 are required to complete and implement a Nutrient Management (NMP). The NMP must be submitted to the Department using the form provided by the Department (Form NMP). Check the box below that applies and provide the required information. The NMP must be developed in accordance with ARM 17.30.1334 and implemented upon the effective date of permit coverage. (Check One)

☑ Does the facility have an NMP?
Date NMP was developed: ~ 26.October.2015

Date NMP was last modified: _____

☐ NMP has not been prepared; provide detailed explanation below

Section I – Supplemental Information

- Manure stored in pens until spread
- Manure spread once per year in 7-10 year rotation.
-Manure is applied once in the fall prior to ripping out an alfalfa grass stand; manure is incorporated in this process. Hay barley is planted in spring and stands for one year, then the field is prepared to go back into alfalfa/grass for 7-10 years.
-Manure application is determined to meet N needs of the barley crop for one year; phosphorus is calculated for the barley year and 2-3 alfalfa years. In this scenario, N and P are just below the agronomic needs for the N and P calculations respectively.
-To clarify, manure is only spread once every 7-10 years per field and barely/nearly meets needs for the barley crop and subsequent alfalfa/grass years.

Section J - CERTIFICATION

Permittee Information:

This Form NMP must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

All Permittees Must Complete the Following Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information; including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA]

A. Name (Type or Print) Katharine M. Anderson	
B. Title (Type or Print) Vice President of Climbing Arrow Ranch, Inc.	C. Phone No. 406-388-2294
D. Signature Katharine M. Anderson	E. Date Signed 1/25/17

The Department will not process this form until all of the requested information is supplied, and the appropriate fees are paid. Return this form (NOI) and the applicable fee to:

Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620-0901
(406) 444-3080

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Form NOI – Application for New and Existing Concentrated Animal Feeding Operations and Aquatic Animal Production Facilities

Important: Do not use this form to transfer permit coverage to a new owner or operator, you must use Form PTN. You must provide the information requested for this application to be complete. Responses must be self-explanatory and must not refer exclusively to attached maps, plans or documents. The appropriate fees must accompany this Form NOI. Mail this to the DEQ address stated on the form. You must maintain a copy of the completed form for your records. CAFO General Permit and the Fish Farm General Permit documents and related forms are available at (406) 444-3080 or on the DEQ website at: http://www.deq.mt.gov.

Please type or print legibly; applications that are not legible or are not complete will be rejected.

SPECIFIC ITEM INSTRUCTIONS

Section A – Application Status

Check the box that applies and provide the requested information. If Form NOI has not been previously submitted for this site, check the first box (New). DEQ will assign a permit number when the form is submitted. The permit number is a 9-digit code beginning with MTG010. If you submitted a Form NOI and DEQ deemed the application deficient or incomplete, check the second box (Resubmitted); If you were notified by DEQ that the permit coverage expired or will expire and you are now submitting an NOI to continue coverage check the third box (Renewal); if there is a change in the facility information (Section H or Section I), check the last box (Modification). If a NOI has been submitted and deemed deficient then the permit number will appear in the deficiency letter. If the site is covered under the *General Permit for Concentrated Animal Feeding Operations* or the *General Permit for Fish farms,* the number is given on the Authorization letter sent to you by DEQ. The permit number must be included on any correspondence with DEQ regarding this site.

Section B – Facility Information:

Identify the legal name of the facility that is subject to permit coverage. The facility is the land or property where the facility or activity is physically located or conducted, including adjacent land used in connection with the facility or activity. Give the address or location of this facility and the geographical information. The location may be the physical mailing address or description of how the facility may be accessed. (PO Boxes are not acceptable.) Latitude and longitude must be accurate to the nearest second. Sources include GPS, a USGS topographic map, and/or "Topofinder" from http://nris.mt.gov/interactive.asp.

Section C – Applicant (Owner/Operator) Information:

Give the name, as it is legally referred to, of the person, business, public organization, or other entity that owns, operates, controls or supervises the facility described in Section B of this Form. The operator is the legal entity which controls the facility operation. The permit will be issued to the entity identified in this section (Section C). The owner or operator assumes all liability for discharges of the facility and compliance with the permit. If the owner or operator is other than a person or government entity it must be registered with the Montana Secretary of State's office.

Section D – Existing or Pending Permits, Certification, or Approvals:

List, in descending order of significance, the four digit standard industrial codes that best describe the activities at this facility. Also, provide a brief description in the space provided. A complete list of SIC Codes (and conversion form the newer North American Industry Classification System (NAICS)) can be obtained from the Internet at http://www.census.gov/epcd/www/naics.html or in paper from the document entitled "Standard Industrial Classification Manual", Office Management and Budget, 1987. SIC Code listings may also be found at http://www.osha.gov/pls/imis/sicsearch.html. At least on SIC code must be provided. See attached table for common SIC codes.

Section F – Facility Contact Person/Position:

Give the name, title, and work phone number of a person who is thoroughly familiar with the operation of the facility and the facts reported in this form, and who can be contacted by DEQ for additional information. Those facilities with periodic changes in the contact person may provide the contact person's position instead of a person's name.

Section G – Receiving Surface Water(s):
An outfall location is considered to be a discrete channel, conveyance, structure, or flow path from which the discharge leaves the boundary of the facility and/or enters surface water. "Surface waters" is defined in ARM 17.30.1102(32) as any waters on the earth's surface including, but not limited to, streams, lakes, ponds, reservoir, or other surface water including ephemeral and intermittent drainage ways and irrigation systems. Water bodies used solely for treating, transporting, or impounding pollutants shall not be considered surface water. Provide the following information in the table on the application form:

1. Assign a number to each outfall starting with 001. If the outfall is not well defined, assign the outfall number to the drainage area. For existing permittees, ensure outfall numbers used are consistent with those identified in the past for the same outfall.
2. Latitude/longitude can be derived from USGS 7.5 minute topographic map and/or "Topofineder" at http://nris.mt.gov/interactive.html . Latitude and longitude must be accurate to the nearest second.
3. Give the name of the surface waters that receive the discharge. If the discharge reports to a municipal storm sewer, please indicate so.
4. Please attach a USGS topographic map(s) indicating the boundary of your facility, major drainage patterns, and the receiving surface water(s).

The facility must check the CWAIC data base at http://cwaic.mt.gov/ to determine if the receiving water is impaired for nutrient (nitrate and/or phosphorus).

Section H – Concentrate Animal Feeding Operation Characteristics:
Waste Production, Storage and Disposal:
Report the maximum number of each type of animal confined at any one time and the type of confinement structure used for each (e.g. open feedlot, under roof.)

Manure, Litter, and/or Wastewater Production and Use:
To *transfer waste* means to give away or sell waste to another person for disposal on land owned or controlled by someone other than the permit applicant.

The term *"storage pond,"* includes, but is not limited to ponds, aerobic lagoons, evaporation ponds, manure holding cells, collection basins, settling basins, bermed or diked areas used for impounding waste, and temporary or seasonal waste holding ponds.

"Production area" means that part of an Animal Feeding Operation (AFO) that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The *animal confinement area* includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milk rooms, milking centers, cow yards, barnyards, medication pens, walkers, animal walkways, and stables. The *manure storage area* includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storage, liquid impoundments, static piles, and composting piles. The *raw materials storage area* includes but is not limited to feed silos, silage bunkers, and bedding materials. The *waste containment area* includes but not limited to settling basins, and areas within berms and diversion which separate uncontaminated storm water. Also include in the definition of production area is any egg washing or egg processing facility, and any area used in storage, handling, treatment, or disposal of mortalities.

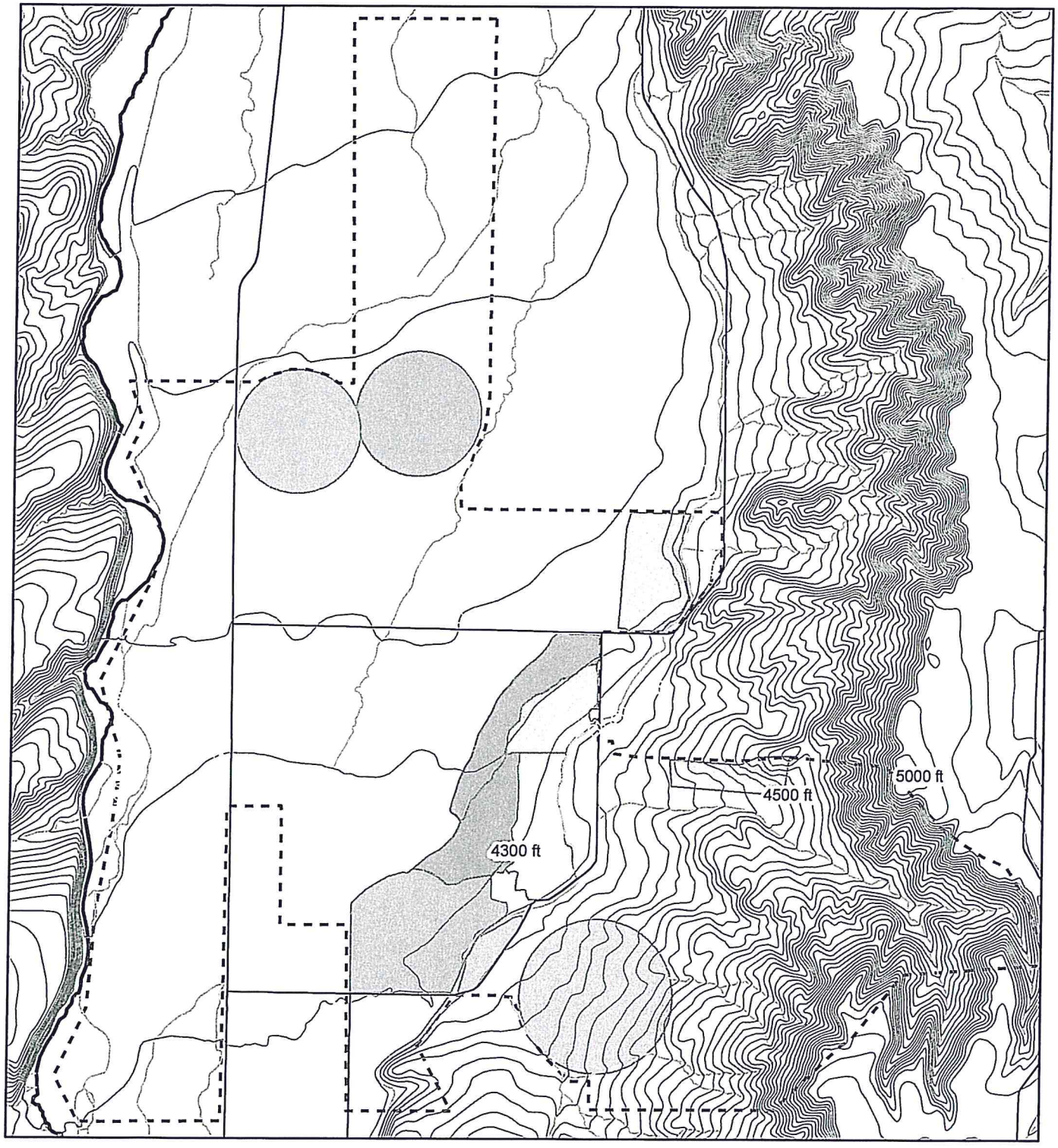
"Land application area" means land under control of AFO owner or operator, whether it is owned, rented, or leased, to which manure, litter or process wastewater from the production area is or may be applied.

Section I - Supplemental Information:
Use the space provided to expand upon any information requested in the application or information you wish to bring to the attention of the reviewer. Attach additional sheets, if necessary. For applicants requesting a modification to an existing authorization or site-specific Nutrient Management Plan (aka Form NMP), provide and explanation of the requested modification.

Common Standard Industrial Classification (SIC) Codes

Division	SIC	Industrial Activity Represented
Agriculture, Forestry and Fishing	211	Beef Cattle Feedlots
	212	Beef Cattle, Except Feedlots
	213	Hogs
	214	Sheep and Goats
	241	Dairy Farms
	251	Broiler, Fryer and Roaster Chickens
	252	Chicken Eggs
	253	Turkeys and Turkey Eggs
	254	Poultry hatcheries
	259	Poultry and Eggs, not elsewhere classified (Ducks)
	272	Horses and other Equines
	921	Fish Hatcheries and Preserves
Mining	1021	Copper Ores
	1031	Lead and Zinc
	1044	Silver Ores
	1041	Gold Ores
	1221	Bituminous Coal and Lignite Surface Mining
	1311	Crud Petroleum and Natural Gas
	1442	Construction Sand and Gravel
Construction	1521	General Contractor - Single Family Houses
	1522	General Contractor - Residential Bldgs. Other Than Single Family
	1542	General Contractor - Nonresidential Buildings, Other than Industrial Buildings and Warehouses
	1611	Highway and Street Construction, Except Elevated Highways
	1622	Bridge, Tunnel, and Elevated Highway construction
	1623	Water, Sewer, Pipeline, communications & Power Line Construction
	1629	Heavy construction, Not Elsewhere Classified
	1794	Excavation Work
	7349	Building Cleaning and Maintenance Services, Not Elsewhere
Manufacturing	2011	Meat Packing Plants
	2063	Beet Sugar
	2421	Sawmills and Planning Mills, General
	2611	Pulp Mills
	2911	Petroleum Refining
	3241	Cement, Hydraulic
Transportation, Communications, Electric, Gas and Sanitary Services	4911	Electric Services
	4941	Water Supply
	4952	Sewerage Systems
	4953	Refuse Systems
Wholesale Trade	5093	Scrap and Waste Materials
	5154	Livestock
	5171	Petroleum Bulk Stations and Terminals
Retail Trade	5541	Gasoline Service Station
	5984	Liquefied Petroleum Gas (Bottled Gas) Dealers
Services	7011	Hotels and Motels
	7033	Recreational Vehicle Parks and Campsites
	7542	Carwashes
Public Administration	9224	Fire Protection
	9711	National Security

CA Ranch - Elevation/Topography



Estimated Property Line

Elevation Contour (20ft)

Feedlot Fence Line

Small & Intermittent Streams

Madison River

0 0.35 0.7 1.05 1.4 Miles

N

Author: T. M. Bass
Date: 08.December.2015
Scale: ~ 1:38K
Data: MT State Library NRIS, USGS 3DEP, and original
Note: land application fields unlabeled, cross-reference to map titled: Feed Lot and Land Application Areas

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Montana Department of
ENVIRONMENTAL QUALITY

WATER PROTECTION BUREAU

FORM
NMP

Nutrient Management Plan

READ THIS BEFORE COMPLETING FORM: Before completing this form (Form NMP), Concentrated Animal Feeding Operation (CAFO) operators need to read the General Permit, particularly Part IV.A. CAFO operators also need to read the "Instructions For filling out Form NMP," found at the back of this form. Form NMP is intended to help CAFO operators develop a site-specific Nutrient Management Plan, in compliance with Part IV.A of the General Permit and all applicable State rules and statutes. Your Nutrient Management Plan must be maintained at the site as required in Part III of the General Permit. Sections B and C on your Form NMP must state the information exactly the same way as it was stated on the most recently submitted version of your NOI-CAFO. Attach additional pages as necessary, indicating the corresponding section number on this NMP form. The 2013 General Permit, current fee schedule, and related forms are available from the Water Protection Bureau at (406) 444-3080 or http://www.deq.mt.gov/wqinfo/MPDES/CAFO.asp

Section A – NMP Status:

- [x] New — No prior NMP submitted for this site.
- [ ] Resubmitted — Previous NMP found incomplete.
- [ ] Modification — Change or update to existing NMP.
- [ ] New 2013 — New 2013 version of NMP.

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Section B – Facility Information:

Facility Name C.A. Ranch Feedlot (backgrounding)

Facility Location 11000 Buffalo Jump Rd.

Nearest City of Town Three Forks, MT County Gallatin

Section C – Applicant (Owner/Operator Information):

Owner or Operator Name C.A. Ranch, Inc.

Mailing Address P.O. Box 10997

City, State, and Zip code Bozeman, MT, 59719

Facility Phone Number (406)-388-2294

Email Kander2202@gmail.com

Section D – NMP Minimum Elements:

1. Livestock Statistics		
Animal Type and number of animals	**# of Days on Site (per year)**	**Annual Manure Production (tons, cu. yds. or gal**
1. Beef Calves (1600)	See attached Oct.-July in reducing	1000T
2.	numbers	
3.		
4.		
5.		
6.		
7.		
8.		

Method used for estimating annual manure production:
Custom Hauling and spreading # of loads X 14T; 70-75 loads per year

2. Manure Handling

a. Describe Manure handling at the facility:
Scraped from lot and stock piled in pens. Depth of manure and organic pack varies and is deepest down-slope in the pens nearest the feed bunks. Annual cleaning, leaving some residual organic pack in lot. Lot/pens are stormwater protected. Direct hauled from stockpile to fields in fall, incorporated and made ready for spring planting of hay barley.

b. Frequency of Manure Removal from confinement areas:
Yearly

c. Is this manure temporarily stored in any location other than the confinement area? ☐ **Yes** ☑ **No**
If so then how and where?

d. Is manure stored on impervious surface? ☐ **Yes** ☑ **No**
If yes, describe type and characteristics of this surface:
Animal packed indigenous soil base with residual organic pack.

3. Waste Control Structures					
Waste Control Structures (name/type)	**Length (ft.)**	**Width (ft.)**	**Depth (ft.)**	**Volume (cubic ft. or gallons)**	**Number of days of storage**
1. setting basin	115	115	4	31705 ft3	30+ days
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

What is the 24 hr. 25 yr. storm event at this facility 2" precipitation

Production area: 38.6 **acres.** **Type of lot (dirt or paved):** dirt w/ organic pack

Area contributing drainage form outside CAFO that enters confinement areas and waste storage, conveyance, or treatment structures: none **acres.**

What is the annual precipitation during the critical storage period less than 14" annually

How much freeboard do the pond(s) have it is nearly always empty, 4 feet

4. Disposal of Dead Animals.

Describe how dead animals are disposed of at this facility:
Pit dug on flat SE of feedlot away from drainages and buried.

5. Clean Water Diversion Practices

Describe how clean water is diverted from production area:
No free flowing clean water uphill from CAFO

-North edge top of hill

-Partial berm and swale N/E edge (to be improved summer 2015)

6. Prohibiting Animals and Wastes from Contact with State Waters

Describe how animals and wastes are prohibited from direct contact with state waters:
Runoff from lot is rare due to manure and compost pack. In extreme snow-melt or rain events, the settling/ evaporation pond would overflow to permanently grassed pasture. This has never been observed. Grassed run is one quarter mile (1300 ft.) to Sloan Ditch, which does not return to river; water is consumed for agricultural use. Confined animals have no access to surface water.

Describe how Chemicals and other contaminants are handled on-site:
No chemicals on site

7. Best Management Practice (BMPS)

Describe in detail all temporary, permanent and structural BMPS which will be used to control runoff of pollutants from facility's production area. Indicate the location of these measures. If BMPS are not installed include a schedule for implementation of each of these measures. Examples of BMP measures could include but are not limited to: constructing ditches, terraces,, and waterways above and open lot to divert clean water run on; installing gutters, downspouts and buried conduits to divert roof drainage; providing more roofed area: decreasing open lot surface area; repairing of adjusting water systems to minimize water wastage; using practical amounts of water for cooling purposes; recycling water if practical and applicable.
Production Area BMP's

Berms in small coulees (areas of potential concentrated flow within lot pens) in each pen to slow down any run-off; Down-slope areas of pens have 1-2 foot manure and compost pack for absorption.

Describe in detail all temporary, permanent and structural Best Management Practices (BMPs) which will be used to control runoff of pollutants from facility's land production area. Indicate the location of these practices. If not already in use, include a schedule for implementation of each of these measures. Attached details and specifications may be used to supplement this description. Examples of BMP measures could include but are not limited to: maintaining setbacks from surface waters for manure applications; managing irrigation practices to prevent ponding of wastewater on land application sites;

never spray irrigating waste on to frozen ground: consulting with the Department prior to applying any liquid waste to frozen or snow-covered ground; applying wastes at agronomic rates.

Land Application BMP's

Manure is never applied to frozen ground. Manure applications occur in early fall on flat fields and are incorporated for first available spring planting of hay barley.

Buffers	☑ Yes ☐ No	**Conservation Tillage**	☐ Yes ☑ No
Constructed Wetlands	☐ Yes ☑ No	**Grass Filter**	☐ Yes ☑ No
Infiltration Field	☐ Yes ☑ No	**Residue Management**	☐ Yes ☑ No
Set backs	☐ Yes ☑ No	**Terrace**	☐ Yes ☑ No

Other examples
No wells are located in or near application areas. Farming and manure applications do not go all the way to ditch or creek edges.

8. Implementation, Operation, Maintenance and Record Keeping – Guidance

The permittee is required to develop guidance addressing implementation of NMP, proper operation and maintenance of the facility, and record keeping as described in Part 2 of the permit.

Has a guidance document been developed for the facility? ☑ Yes ☐ No

Certify the document address the following requirements:

Implementation of the NMP:	☑ Yes ☐ No
Facility operation and maintenance:	☑ Yes ☐ No
Record keeping and reporting	☑ Yes ☐ No
Sample collection and analysis:	☑ Yes ☐ No
Manure transfer	☐ Yes ☑ No

Provide name, date and location of most recent documentation:
Permit NMP with flow chart and summary document, and Excel spreadsheet. Prepared by Thomas M. Bass, MSU Nov 2015. Kept and maintained by: Kathy Anderson and Ranch Manager

If your answer to any of the above question is no, provide explanation:
Manure generation/inventories do not meet the comprehensive nutrient need of the ranch. There is no need to export.

Section E – Land Application

Will manure be land applied to land either owned, rented, or leased by the owner or operator of the facility?

☑ Yes If yes, then the information requested in Section E must be provided.

☐ No If no, then provide an explanation of how animal waste at this facility are managed.

Photos and/or Maps

Attach an aerial photograph or map of the site where manure is to be applied. (Use multiple photos/maps if necessary to show required details.) The photo(s)/map(s) must be printed on no larger than an 11"X 17" piece of paper, and must clearly identify the following items:

- Individual field boundaries for all planned land application areas
- A name, number, letter or other means of identifying each individual land application field
- The location of any downgradient surface waters.
- The location of any downgradient open tile line intake structures
- The location of any downgradient sinkholes
- The location of any downgradient agricultural well heads
- The location of all conduits to surface waters
- The specific manure/waste handling or nutrient management restrictions associated with each land application field
- The soil type(s) present and their locations within the individual land application field(s)
- The location of buffers and setbacks around state surface waters, well heads, etc.

Land Application Equipment Calibration

Describe the type of equipment used to land apply wastes and the calibration procedures:

-Linear distance of first load X 8ft

Manure Sampling and Analysis Procedures

A representative manure sample will be analyzed a minimum of once annually for Total Nitrogen, and Total Phosphorus. Analysis results will be reported in lbs/ton or lbs/1,000 gal. Results of these analyses will be used in determining rates for manure, litter, and process wastewater.

Manure Sample collection will occur according to ARM 17.30.1334

Other (describe)

Yes; ARM 17.30.1334(4)

Soil Sampling and Analysis Procedures

Representative soil (composite) samples from the top 6 inches layer of soil for each field where manure will be applied must be analyzed for phosphorus content at least once every three years. Analyses will be conducted by a qualified laboratory, using the Olsen P test. Results will be reported in parts per million (ppm) and will be used in determining application rates for manure, litter, and process wastewater

Soil samples collection will occur according the methods in ARM 17.30.1334

Other (describe)

Soil consultant takes samples and will be advised of ARM 17.30.133(5)a-d.

Phosphorus Risk Assessment

The permittee shall access the risk of phosphorus contamination of state waters. An assessment shall be conducted for each field, under the control of the operator, to which manure, litter or process wastewater will or

may be applied. If a new field is added in the future, then the permittee must submit a revised (modified) NMP. The permittee has the option of using Method A or Method B (below) to complete the assessment. Copies of all tables and calculations used to complete the assessments, as well as the results of the assessments, shall be submitted to the Department and copies shall be maintained on-site at the facility and available for Departmental review. The results of the assessments shall be used to determine the appropriate basis for land application of wastes from the facility.

Method Used

Indicate which method will be used to determine phosphorus application:

Method A – Representative Soil Sample
Method B – Phosphorus Index

Method A – Representative Soil Sample

a. Obtain one or more representative soil sample(s) from the field per 17.30.1334
b. Have the sample analyzed for Phosphorus by a qualified lab. The "Olsen P test" must be used for the analysis, and the result must be reported in parts per million (ppm)
c. Using the results of the Olsen P test, determine application basis according to the Table below.

Soil Test

Olsen P Soil Test Results (ppm)	Application Basis
<25.0	Nitrogen Needs of Crop
25.1 - 100.0	Phosphorus Needs of Crop
100.0 – 150.0	Phosphorus Needs up to Crop Removal Rate
>150.0	No Application allowed

Method B – Phosphorus Index

a. Complete a phosphorus Index according to the crop grown on each field. Complete table in Appendix A to calculate phosphorus index. For information on filling out specific sections in Appendix A, please refer to the method as described in Natural Resource Conservation Service (NRCS), Agronomy Technical Note MT-77 (rev3), January 2006.
b. Using the calculated Total Phosphorus Index Value, assign the overall site/field vulnerability to phosphorus loss according to the table below.

Total Phosphorus

Total Phosphorus Index Value	Site Vulnerability to Phosphorus Loss
<11	Low
11-21	Medium
22-43	High
>43	Very High

c. Using the calculated Site Vulnerability to Phosphorus Loss, determine the appropriate application basis according to the table below.

Site Vulnerability to Phosphorus Loss	Application Basis
Low	Nitrogen Needs
Medium	Nitrogen Needs
High	Phosphorus Need Up to Crop Removal
Very High	Phosphorus Crop Removal or No Application

The applicant has 2 ways in which to report how manure or process wastewater application rates can be reported to DEQ.

1. **Linear Approach**. Expresses rates of application as pounds of nitrogen and phosphorus. CAFOs selecting the linear approach to address rates of application must include in the NMP submitted to the permitting authority the following information for each crop, field, and year covered by the NMP, which will be used by the permitting authority to establish site-specific permit terms:
- The maximum application rate (pounds/acre/year of nitrogen and phosphorus) from manure, litter, and process wastewater.
- The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field. [If a state does not have an N transport risk assessment, the NMP must document any basis for assuming that nitrogen will be fully used by crops.] The CAFO must specify any conservation practices used in calculating the risk rating.
- The crops to be planted or any other uses of a field such as pasture or fallow fields.
- The realistic annual yield goal for each crop or use identified for each field.
- The nitrogen and phosphorus recommendations from in ARM 17.30.1334 (technical standard) for each crop or use identified for each field.
- Credits for all residual nitrogen in each field that will be plant-available.
- Consideration of multi-year phosphorus application. For any field where nutrients are applied at a rate based on the crop phosphorus requirement, the NMP must account for single-year nutrient applications that supply more than the crop's annual phosphorus requirement.
- All other additions of plant available nitrogen and phosphorus (i.e., from sources other than manure, litter, or process wastewater or credits for residual nitrogen).
- The form and source of manure, litter, and process wastewater to be land-applied.
- The timing and method of land application. The NMP also must include storage capacities needed to ensure adequate storage that accommodates the timing indicated.
- The methodology that will be used to account for the amount of nitrogen and phosphorus in the manure, litter, and wastewater to be applied.
- Any other factors necessary to determine the maximum application rate identified in accordance with this Linear Approach.

2. **Narrative Rate Approach**. Expresses a narrative rate of application that results in the amount, in tons or gallons, of manure, litter, and process wastewater to be land applied. CAFOs selecting the narrative rate approach to address rates of application must include in the NMP submitted to the permitting authority the following information for each crop, field, and year covered by the NMP, which will be used by the permitting authority to establish site-specific permit terms:
- The maximum amounts of nitrogen and phosphorus that will be derived from all sources of nutrients (pounds/acre for each crop and field).
- The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field. The CAFO must specify any conservation practices used in calculating the risk rating.
- The crops to be planted in each field or any other uses of a field such as pasture or fallow fields, including alternative crops if applicable. Any alternative crops included in the NMP must be listed by field, in addition to the crops identified in the planned crop rotation for that field.
- The realistic annual yield goal for each crop or use identified for each field for each year, including any alternative crops identified.
- The nitrogen and phosphorus recommendations from ***[the permitting authority to specify acceptable sources]*** for each crop or use identified for each field, including any alternative crops identified.
- The methodology (including formulas, sources of data, protocols for making determination, etc.) and actual data that will be used to account for: (1) the results of soil tests required by Parts II.A.4.b and III.A.3.g of this

permit, (2) credits for all nitrogen in the field that will be plant- available, (3) the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied, (4) consideration of multi-year phosphorus application (for any field where nutrients are applied at a rate based on the crop phosphorus requirement, the methodology must account for single-year nutrient applications that supply more than the crop's annual phosphorus requirement), (5) all other additions of plant available nitrogen and phosphorus to the field (i.e., from sources other than manure, litter, or process wastewater or credits for residual nitrogen), (6) timing and method of land application, and (7) volatilization of nitrogen and mineralization of organic nitrogen.
• Any other factors necessary to determine the amounts of nitrogen and phosphorus to be applied in accordance with the Narrative Rate Approach.
• NMPs using the Narrative Rate Approach must also include the following projections, which will not be used by the permitting authority in establishing site-specific permit terms:
i. Planned crop rotations for each field for the period of permit coverage.
ii. Projected amount of manure, litter, or process wastewater to be applied.
iii. Projected credits for all nitrogen in the field that will be plant-available.
iv. Consideration of multi-year phosphorus application.
v. Accounting for other additions of plant-available nitrogen and phosphorus to the field.
vi. The predicted form, source, and method of application of manure, litter, and process wastewater for each crop

- If the receiving water is on the 303(d) list for nutrients then the narrative rate approach must be used.

a. For the Linear Approach the permittee will complete the Nutrient Budget Worksheet, below, for the next 5 years to which manure or process waste water is or may be applied. A copy of each Nutrient Budget Worksheet will be maintained on site, and a copy will be submitted to the Department.

Nutrient Budget Worksheet

Field identification: #2 Lwr. Harr. Year: 2015 Crop: 1yr Hay Barley + 7 yrs alf/grs					
Expected Crop Yield: 2 tons/acre hay barley, 4 tons/acre alf/grass in subsequent years					
Phosphorus index results or Phosphorus application from soil test: Olsen P 5 ppm					
Method of Application: broadcast/incorporated					
When will application occur: fall preceding planting of hay barley					
Nutrient Budget			Nitrogen-based Application	Phosphorus-based Application	Source of information
1		Crop Nutrient Needs, lbs/acre	125		MSU EB161
2	(-)	Credits from previous legume crops, lbs/ac	soil N = line 3		
3	(-)	Residuals from past manure production lbs/acre	21		soil test
4	(-)	Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre	0		
5	(-)	Nutrients supplied in irrigation water, lbs/acre	0		
6		**= Additional Nutrients Needed, lbs/acre**	104		
7		Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1000 gal (from manure test)	15 (av.rounded up)		Avg. test & book
8	(x)	Nutrient Availability factor, for Phosphorus based application use 1.0	.5		MSU
9		**= Available Nutrients in Manure, lbs/ton or lbs/1000 gal**	7.50 lbs/ton		
10		Additional Nutrients needed, lbs/acre (calculated above)	104		
11	(/)	Available Nutrients in Manure, lbs/ton or lbs/1000 gal (calculated above)	7.50		
12		**= Manure Application Rate, tons/acre or 1000 gal/acre**	13.9 tons/acre		

Comments:
This field is 80 acres and is one of the smaller fields in use; based on manure generation, only 12.5 tons per acre is available. Utilizing the entire manure resource 1st year N is still deficient ~31 lbs/ acre. 1st year P budget is in surplus; 3 year P budget reaches zero.

Section F - CERTIFICATION

Permittee Information: This form must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

All Permittees Must Complete the Following Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information; including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA]

A. Name (Type or Print) Katharine M. Anderson	
B. Title (Type or Print) Vice President of Climbing Arrow Ranch, Inc.	**C. Phone No.** 406-388-2294
D. Signature Katharine M. Anderson	**E. Date Signed** 1/25/17

The Department will not process this form until all of the requested information is supplied, and the appropriate fees are paid. Return this form and the applicable fee to:

Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620-0901
(406) 444-3080

RECEIVED
JAN 30 2017
DEQ WATER QUALITY DIVISION

INSTRUCTION FOR Form NMP – Nutrient Management Plan Associated With Concentrated Animal Feeding Operations

You may need the following items in order to complete this form: A copy of your most recently submitted NOI-CAFO: United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), No. 80.1 Nutrient Management, Agronomy Technical Note MT-11 (revision 3), January 2006; Montana State University Extension Service Publication 161, Fertilizer Guidelines for Montana Crops; United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), Sampling Soils for Nutrient Management – Manure Resource, MT 04/07; Montana State University, Mont Guide, Interpretation of Soil Test Reports for Agriculture, MT200702AG, July, 2007; United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), Conservation Practice Standard, Code 590 (November 2006) and Waste Utilization, Code 633 (August 2000).

Please type or print legibly; forms that are not legible will be considered incomplete.

SPECIFIC ITEM INSTRUCTIONS

Section A – NMP Status:

Check the box that applies and provide the requested information. If the Form NMP has not been previously submitted for this site, check the first box (New). If you submitted a FORM NMP and the department found it to be incomplete, check the second box (Resubmitted);

If you were notified by the Department that the permit coverage expired and you are now submitting and updated Form NMP, check the third Box (Modification). If you have received a deficiency letter in regard to your NMP application the facilities assigned designation will be noted in the RE: line starting with MTG#######. If the site is covered under *the General Permit for Concentrated Animal Feeding Operation*, the number is given on the Authorization letter sent to you by the Department. The permit number must be included on any correspondence with the Department regarding this site.

Section B – Facility Information:

The information must be stated exactly the same way as it was stated on the most recently submitted version of your form NOI-CAFO.

Section C – Applicant (Owner/Operator) Information:

The information must be stated exactly the same way as it was stated on the most recently submitted version of your form NOI-CAFO.

Section D – Waste Management Minimum Elements:

1. ***Livestock Statistics:*** Identify each type of animal confined at this facility. The definition of "type" could include animals of a given species, animals of a given weight class (e.g. piglets, sows), or animals housed for a specific purpose (e.g. dry cows, milking cows).

"number of days on site per year" means the number of days at least one animal of a given type is held in confinement during 12-month period.

"Annual manure production" means the volume of manure (from a given animal type) that is stored, land applied, or transferred to another person during any given 12-month period.

"Method used for estimating annual manure production." When describing the method used to calculate annual manure production, include all formulas, factors, references to tables, and other resources used to calculate manure production. Be sure to account for soiled bedding materials and manure-contaminated runoff water, which is also consider manure under state regulations. For example on how to calculate manure production see http://animalrangeextension.montana.edu/articles/natresourc/cnmp/nonprint/step2.htm.

2. Manure Handling

Describe manure handling at the facility.

3. Waste Control Structures. List all waste control structures. These may include, but are not limited to, manure lagoons, manure ponds. Evaporation ponds, wastewater retention ponds, contaminated runoff retention ponds, settling basins, underground storage tanks, underfloor pits, manure solids stacking pads, vegetative treatment strips, composting facilities, and dry stack facilities. Berms, dikes, concrete curbs, ditches, and waste transfer pipelines are also waste control structures and must be listed; though some of the requested measurements may not apply (e.g. "column" usually does not apply to a waste transfer pipeline).

"25-year 24-hour rainfall event" means a precipitation event with a probable recurrence interval of once in 25 years as defined by the National Weather Service in Technical Paper Number 40, "Rainfall Frequency Atlas of the United States," May 1961, and subsequent amendments, or the equivalent regional or state rainfall probability information developed therefrom.

"Critical Storage period" The minimum design volume for liquid manure storage structures is based on the expected length of time between emptying events that result in maximum production of process wastewater, including runoff from the production area. That period is the ***critical storage period.*** The critical storage period is considered to the 180 days starting November 1st to April 30.

4. Disposal of Dead Animals. Please be as specific as possible with the information that you provide. For example, if dead animals are disposed of by burial, the method/practice description should include the fact that they are buried, how quickly after death they are hauled to the burial site, and how quickly they are covered with soil and the depth of the soil cover over the animal. The method/practice location information should be detailed enough that an inspector can find the site without the need for additional guidance (e.g. latitude and longitude). It may not simply reference a map.

5. Clean Water Diversion Practices, The practice description does not need to be any more detailed than "berm", "ditch", grassy swale," etc. The practice location may not simply reference a map.

6. Prohibiting Animals & wastes from Contact with State Waters. The practice description does not need to be any more detailed than "fence", "wall", etc. The practice location may not simply reference a map.

Chemicals and Contaminants. List all major chemicals or other contaminants handled on site as part of your CAFO operation. This would include, but not limited to, pesticides, herbicides, animal dips, disinfectants, etc. Specify the method of disposal for each chemical/contaminant.

7. Best Management Practice (BMPs). Describe the BMPs used to control runoff of pollutants from the production area, and land application area. Please note that "production area" means that part of a CAFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The "animal confinement area" includes but in not limited to open lots, housed lots, feedlots, confinement houses, stall barns, animal walkways, and stables. The "manure storage area" includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles. The "raw material storage area" includes but is not limited to feed silos, silage bunkers, and bedding materials. The "waste containment area" includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of mortalities. If you transfer all of the wastes your CAFO produces, and do not land apply any of it to ground under your operational control, then you will not have any land application area BMPs to describe.

Section E – Land Application:

If all of the manure produced at your facility will be transferred to other persons for use in areas beyond your operational control, then you do not need to provide the information requested in Section E. of this form.

Photos and/or maps:

Manure /waste handling and nutrient management restrictions that must be on the photo/map include buffers and setbacks around state surface waters, well heads, etc.

Nutrient Management and Waste Utilization via Land Application:

The purpose for having two options is to allow the producer to make use of the valuable technical assistance provided by the USDA's Natural Resources Conservation (NRCS), if you should desire.

Land Application Equipment Calibration:

Land application equipment calibration in essential to ensuring that nutrients are being applied at agronomic rates. Please provide specific information on how equipment will be calibrated. The CAFO shall maintain the supporting documentation on site and shall make this information available to DEQ upon request.

Manure sampling and Analysis: Manure must be sampled per ARM 17.30.1334.

When sending manure or soil samples to a laboratory for analysis, it is your responsibility to make sure that the lab uses the correct sampling procedures. Approved Laboratories can be found in Montana State University Extension Service Publication 4449-1, Soil Sampling and Laboratory Selection, June 2005. Before you take any samples, talk to the lab that you intend to use. Ask them if they have specific instructions in order to help ensure

that the analysis results you get are as accurate as possible. If they do, then you must follow their instructions in order to help ensure that the analysis results you get are as accurate as possible.

Linear Approach Nutrient budget work Sheet. You will most likely need to fill out multiple photocopies of the nutrient budget work sheet.

Line 1 Enter in the planned crop nutrient needs in pounds per acre from http://deq.mt.gov/wqinfo/mpdes/cafo.mcpx MSU EB 161.

Line 2 Enter the credits from previous legume crop pounds per acre. See http://deq.mt.gov/wqinfo/mpdes/cafo.mcpx for Legume crop credits.

Line 3 Enter nutrient credits from second year manure applications pounds per acre. See http://deq.mt.gov/wqinfo/mpdes/cafo.mcpx for mineralization rate

Line 4 Enter nutrients supplied by commercial fertilizer in pounds per acre. This can be starter or other fertilizer that is applied prior to manure application.

Line 5 Enter nutrients supplied by any irrigation water in pounds per acre.

Line 6 Subtract lines 2 through 5 from line 1 and enter in the space provided

Line 7 Enter in the nitrogen or phosphorus from sample taken of manure or process waster water within the last year.

Line 8 Enter in the Nutrient Avalibility Factor. See http://deq.mt.gov/wqinfo/mpdes/cafo.mcpx for Nitrogen Avalibility factor. Enter 1 for phosphorus.

Section F – Certification:

If Form NMP is filled out by one person and signed by another, the person signing the document should read it thoroughly. Always retain a copy of each of the documents that you send to the Department.

If you have any questions concerning how to fill out this form, or other forms related to the Montana Pollutant Discharge Elimination System (MPDES) discharge permitting program, please contact the Department's Water Protection Bureau at:

Phone: (406) 444-3080
Fax: (406) 444-1374
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

Appendix A: Phosphorus Index Worksheet (Complete for each field and crop)

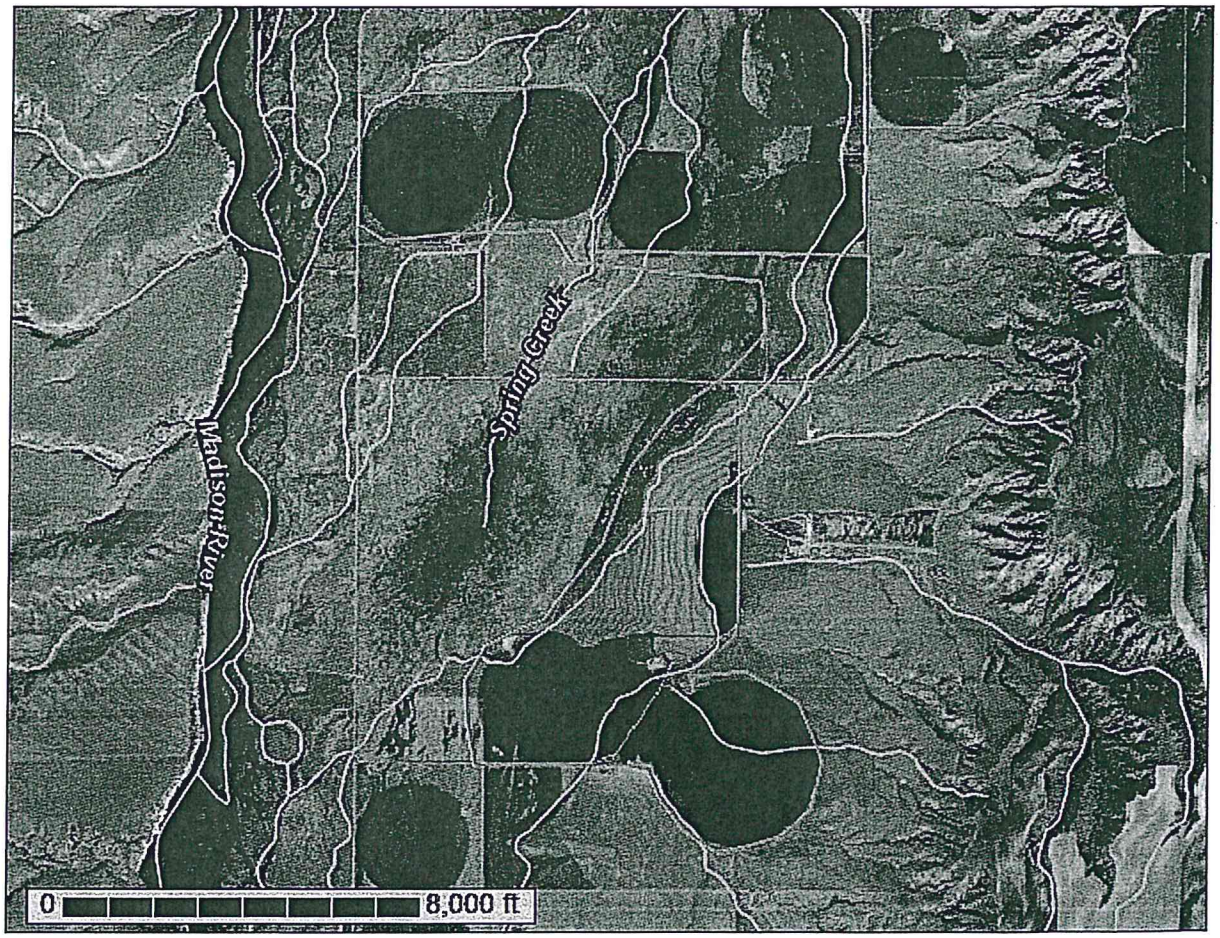
Field:		Crop:			Year:			
Field Category Factor	None (0)	Low (1)	Medium (2)	High (4)	Very High (8)	Risk Value (0,1,2,4,8)	Weight Factor	Weight Risk
Soil Erosion	NA	<5 tons/as/yr	5-10 ton/ac/yr	10-15 tons/ac/yr	QA> 10 for erodible soils		X 1.5	
Furrow Irrigation Erosion	N/A	Tail water recovery, QS>6 very erodible soils, or QS>10 other soils	QS> for erosion resistant soil	QS> for erodible soils	QA>6 for very erodible soils		X 1.5	
Sprinkler Irrigation Erosion	All fields 0-3% slope, all sandy fields or field evaluation indicates little or no runoff large spray on silts 3-8%	Medium spray on silty soils 3-15% slopes, large spray on silty soils 8-15% slope, low spray on silt soils 3-8% large spray on clay soil 3-15% slope	Medium spray on clay soils 3-8% slopes, large spray on clay soils >15% slope, medium spray on silt soil >15% slope	Medium spray on clay soils >8% slope, low spray on clay soil 3-8% slope, low spray on silty soils >15% slopes	Low spray on clay soils >8% slopes		X 1.5	
Runoff Class	Negligible	Very Low or Low	Medium	High	Very High		X 0.5	
Olson Soil Test P	-------	<20 ppm	20-40 ppm	40-80 ppm	>80 ppm		X 0.5	
Commercial P Fertilizer Application Method	None Applied	Placed with Planter or injection deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop emerges	Surface applied to pasture or >3 months before crop emerges		X 1.0	
Commercial P Fertilizer Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205		X 1.0	
Organic P Source Application Method	None Applied	Injected deeper than 2 inches	Incorporated <3 months prior to planting or surface applied during growing season	Incorporated >3 months before crop or surface applied <3 months before crop.	Surface applied to pasture or >3 months before crop emerges		X 1.0	
Organic P Source Application Rate	None Applied	<30 lbs/ac P205	31-90 lbs/ac P205	91-150 lbs/ac P205	>150 lbs/ac P205		X 1.0	
Distance to Concentrated Surface Water Flow	>1,000 feet	200-1,000 feet, or functioning grass waterways in concentrated surface water	100-200 feet	<100 feet	0 feet or application are directly into concentrated surface water flow areas.		X 1.0	
Total Phosphorus Index Value:								

USDA United States Department of Agriculture

NRCS Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Gallatin County Area, Montana



April 4, 2

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Gallatin County Area, Montana
Survey Area Data: Version 19, Sep 28, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 28, 2011—Aug 10, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Gallatin County Area, Montana (MT622)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
745E	Nuley-Rentsac-Rock outcrop complex, 15 to 45 percent slopes	0.9	0.1%
Totals for Area of Interest		**1,380.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

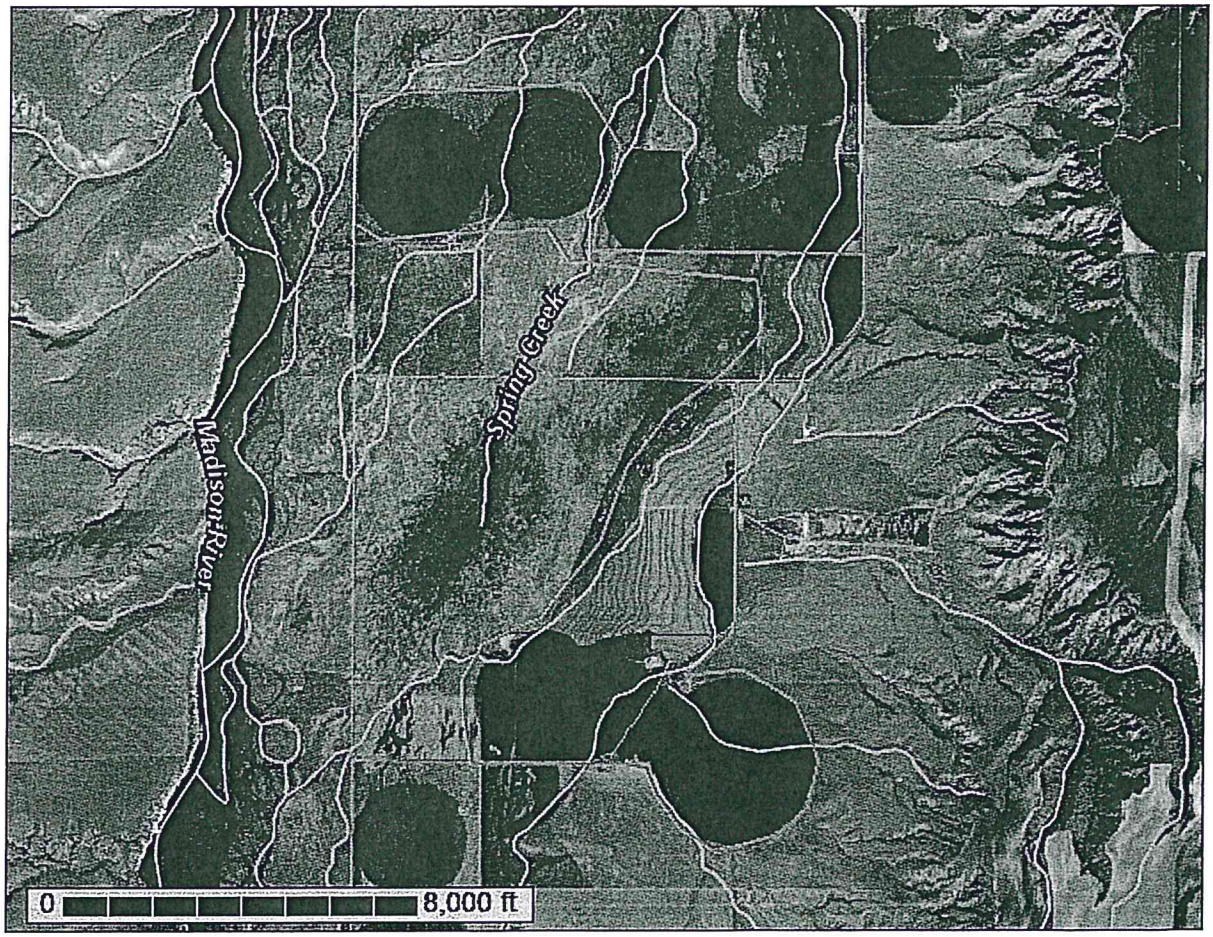
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Gallatin County Area, Montana



April 4, 2016

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
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- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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Please rely on the bar scale on each map sheet for map measurements.

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Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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Soil Survey Area: Gallatin County Area, Montana
Survey Area Data: Version 19, Sep 28, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 28, 2011—Aug 10, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Gallatin County Area, Montana (MT622)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
2A	Havre loam, calcareous surface, 0 to 2 percent slopes	173.2	12.5%
3A	Glendive sandy loam, 0 to 2 percent slopes	237.7	17.2%
3C	Glendive sandy loam, 2 to 8 percent slopes	131.0	9.5%
32B	Amesha loam, 0 to 4 percent slopes	29.2	2.1%
32C	Amesha loam, 4 to 8 percent slopes	4.6	0.3%
32D	Amesha loam, 8 to 15 percent slopes	50.8	3.7%
32E	Amesha-Trimad complex, 15 to 45 percent slopes	7.9	0.6%
33B	Attewan clay loam, 0 to 4 percent slopes	30.2	2.2%
35C	Kalsted sandy loam, 4 to 8 percent slopes	12.9	0.9%
36C	Brocko silt loam, 4 to 8 percent slopes	138.6	10.0%
36D	Brocko silt loam, 8 to 15 percent slopes	15.1	1.1%
41A	Beaverell loam, 0 to 2 percent slopes	88.2	6.4%
241A	Beaverell cobbly loam, 0 to 2 percent slopes	36.8	2.7%
242C	Trimad cobbly loam, 4 to 8 percent slopes	5.3	0.4%
336C	Brocko-Clarkstone silt loams, 4 to 8 percent slopes	0.1	0.0%
410E	Blacksheep-Chinook-Rock outcrop complex, 15 to 45 percent slopes	3.7	0.3%
515A	Saypo-Tetonview complex, 0 to 2 percent slopes, hummocky	40.2	2.9%
520B	Bobkitty clay loam, 0 to 4 percent slopes	36.1	2.6%
521A	Reycreek-Toston-Slickspots complex, 0 to 2 percent slopes	97.1	7.0%
527A	Binna-Slickspots complex, moderately wet, 0 to 2 percent slopes	241.1	17.5%

Gallatin County Area, Montana (MT622)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
745E	Nuley-Rentsac-Rock outcrop complex, 15 to 45 percent slopes	0.9	0.1%
Totals for Area of Interest		**1,380.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

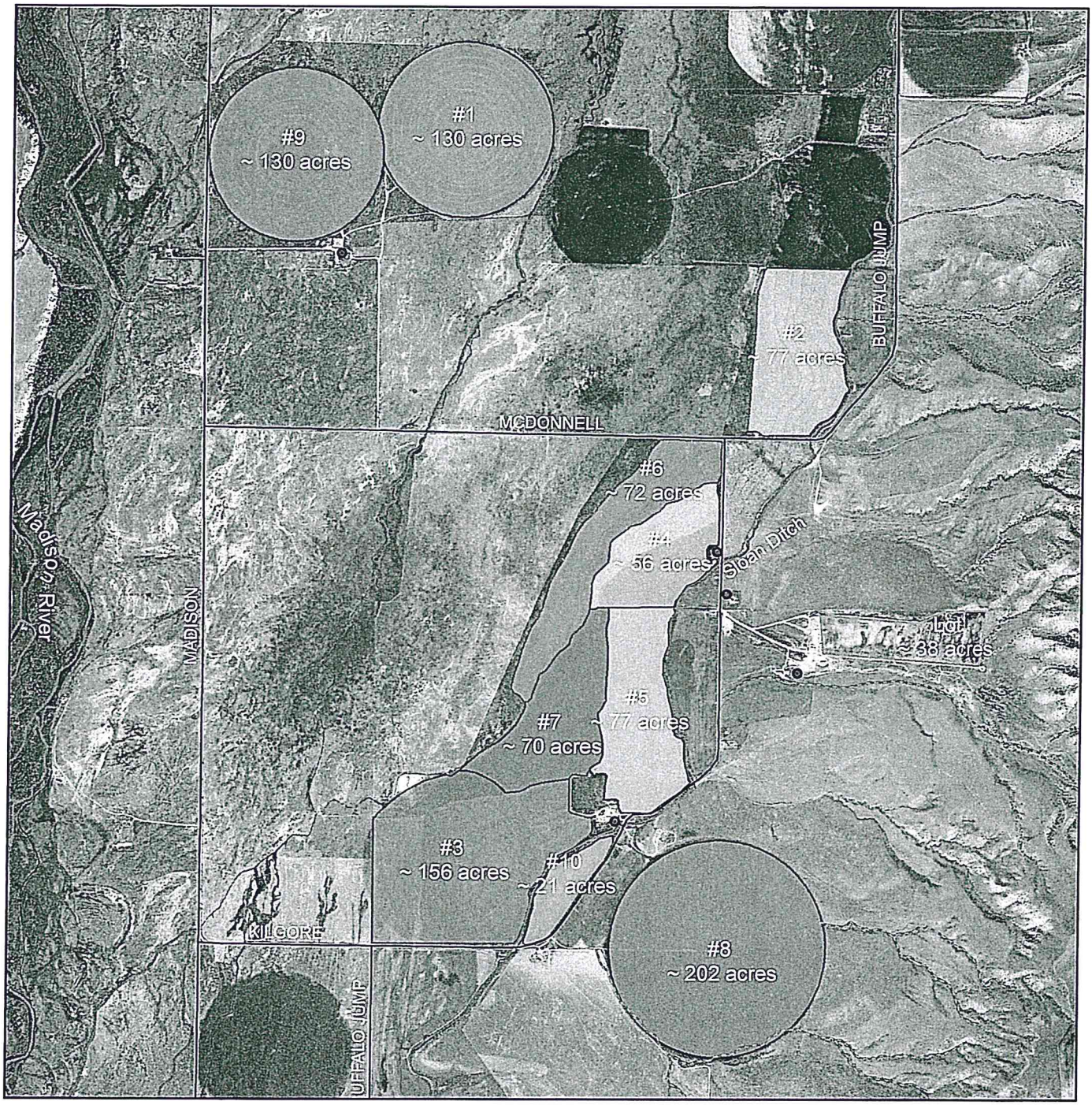
A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

CA Ranch - Feedlot and Land Application Areas



Feedlot Fence Line

Waterways

Coulees-Intermittent

Water Wells

Author: T. M. Bass
Date: 12.Dec.2015
Scale: ~ 1:28K
Data: MT State Library NRIS and original

0 0.25 0.5 0.75 1 Miles

N

CA Ranch - Property Boundary

Estimated Property Line

Feedlot Fence Line

N

0 0.35 0.7 1.05 1.4 Miles

Author: T. M. Bass
Date: 12.Dec.2015
Scale: ~ 1:38K
Data: MT State Library NRIS and original